

IN THE ABSTRACT:

Please replace the Abstract of the Disclosure with the following rewritten Abstract
beginning on the following page:

ABSTRACT

The stress of a sample semiconductor wafer is detected with high accuracy in the form of an absolute value without rotating the sample or the entire optical system. A laser light R is subjected to photoelastic modulation in a PEM 6 to generate a birefringence phase difference and then it is passed through first and second quarter wavelength plates and passes through a semiconductor wafer D having residual stress. When it is passed through a test piece, the direction of the stress of the test piece is detected when the angle between the laser light R and a linear polarization light is 0 and 90 degrees. The transmitted electric signal is delivered to an analog/digital converter 16, and the signal is inputted to a signal processor thus generating transmission signal data. The signal processor reads out the stored reference signal data and the transmission signal data and calculates a reference birefringence phase difference and the absolute values of the birefringence phase difference.